

DESIGN FOR ELECTRONIC COMPONENT PATTERNS OVER 400 MICRON
LAYERS ON PRINTED CIRCUITS

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More specifically, the invention refers to a widening of
the contact areas arranged on printed circuits and of their
conducting zones to receive the conducting parts of the
electronic components to be incorporated on said printed
10 circuit.

Known printed circuits consist of a substrate of
dielectric material, over which the corresponding conducting
material tracks are printed, such as copper, aluminium or
similar. Over said printed circuit, the corresponding
15 electronic components are incorporated later, which the
printed circuit requires to serve the entrusted purposes. For
the latter and between the conducting material tracks,
adhesive material is deposited, which permits the electronic
components to be supported on the same, previously applied to
20 the copper to be involved in the wave soldering process
without them falling before being soldered, which occurs at
the ends of the conducting parts, hence completing the process
of incorporation of said components on the printed circuits.

Said process is conventional and used in the electronics
25 industry and implies no special difficulty when working with
printed circuits of up to 100 microns of copper on the
conducting tracks. However, when the same operation is carried
out on said printed circuits with conducting layers greater
than 105 microns of copper, this same operation becomes almost
30 impossible when executing it with the current production
systems and methods.

To solve this problem and assure the manufacturability
of electronic circuits, with conducting tracks of more than
105 microns of copper, a series of new figures has been
35 designed for each one of the components to which a copper

surface has been added intended to support the adhesive drops and hence, compensate the height difference represented by the copper when greater than 105 microns, that is, if the width of the electronic component zones destined to be interlocked with the conducting layer of the printed circuit were of a width a_1 , the object of the present application has been designed with a width a_2 , since in this way it is possible to deposit in this strip of width a_2 , the corresponding adhesive material which previously, was deposited between the conducting areas, as may be seen in the figures, hence permitting that the electronic component remains temporarily stuck to the printed circuit board until reaching the wave soldering stage.

Other details and features of the present patent application will be shown in the description given below, referring to the figures attached to this specification where the mentioned details are represented. These details are given as an example, referring to a possible case of a practical embodiment, but not being limited to the details indicated herein. Therefore, this description should be considered as an illustration and without limits.

Below, there is a detailed list of the components mentioned in the present patent application, (10) printed circuit, (11) material substrate, (12) conducting material track, (13) electronic component, (13.1) electronic part, (13.2) conducting part, (14) adhesive, (15) solder.

Figure 1 is a simplified front elevation view of a printed circuit board (10) with a copper track (12) less than 105 microns thick, over which an electronic component (13) should be incorporated, applying an adhesive (14) between the copper tracks (12).

Figure 2 is a similar view to that of figure number 1, but at a later stage, that is, when incorporating the electronic component (13) to the copper track (12) and being interlocked to the same with a help of the adhesive (14) and later on is soldered by conventional methods and the soldering

material deposited, such as tin or similar (15), said electronic component (13) being mechanically and electrically incorporated to the printed circuit board (10).

Figure 3 is a simplified front elevation view similar to figure 1, but when the copper track or conducting material has a height of h_2 instead of h_1 .

Figure 4 is a front elevation view similar to figure 3, in which the conducting part (12) has been widened by $(a_2 - a_1)$ with the purpose that when it is desired to incorporate an electronic component (13) the adhesive (14) does not spill over the conducting part.

Figure 5 is a front elevation view similar to figure 3, but at a later moment when the electronic component (13) has been duly interlocked and soldered to the copper track (12) at a thickness greater than 105 microns and height h_2 .

In one of the preferred embodiments of the object of the present application, which may be seen in figures number 3 and 4, when it is wished to incorporate an electronic component (13) to a printed circuit board (10) and when the latter is formed by a copper track or conducting material whose thickness h_2 is greater than 105 microns, the conventional methods indicated in figures 1 and 2 are not possible, that is, as a consequence of the difference of height of h_2 compared with h_1 , a drop of glue (14) with a very large diameter should be incorporated, resulting in part of it being spilled over the layer (12) and being irregularly distributed over the zone (13.2) or conducting part of the electronic component which should be soldered later on, as may be seen in figure 3.

To prevent these drawbacks, some pads have been designed, that is, some zones to tint or receive a layer of adhesive with a greater surface, so that if in a conventional component, it were a_1 , with the new design it is a_2 ; see figure 5, that is, greater than a_1 and as a result, the adhesive may be directly deposited on this area of the

conducting layer or copper track (12), so that it is interlocked to the electronic component (13) to later on receive the solder (15) by conventional methods.

5 Concluding, the invention is reduced to an increase of width of the pads of the electronic components (13), hence able to permit the deposition of the adhesive drops on the conducting layer (12) and in this way, compensate the height difference of the copper track when this is greater than 105 microns.

10 Having sufficiently described the essence of the present patent application, according to the attached drawings, it is understood that any modifications may be introduced, as relevant, provided they do not alter the essence of the present patent, being summarised in the following claims.